

ISIS - Bug #4326

shade application apparently does not apply ZENITH angle value as specified by user

2016-09-01 01:48 PM - Kris Becker

Status:	Closed	Software Version:
Priority:	Normal	
Assignee:	Makayla Shepherd	
Category:	Applications	
Target version:	FY17 Sprint 3	
Impact:	no impact	
Description		
<p>The ISIS shade application does not appear to vary the ZENITH angle as specified by the user. There is no apparent difference no matter what the user sets the ZENITH parameter to.</p> <p>After briefly looking into this problem, it appears the the hillshade equation implemented in the HillShade class is incorrect. The denominator variable in the Hillshade::shadedValue method is adding the square roots together rather than multiplying as shown in the referring paper.</p> <p>This equation is taken from the paper http://people.csail.mit.edu/bkph/papers/Hill-Shading.pdf. The bug is in the implementation of the equation on the right side of p. 27, right below fig. 13. Our implementation shows the square roots in the denominator being added together rather than multiplied. That is likely causing this behavior.</p> <p>The following sources appear to be affected:</p> <p>\$ISISROOT/src/base/apps/shade/shade.cpp \$ISISROOT/isis/src/base/apps/shadow/shadow.cpp (includes ShadowFunctor) \$ISISROOT/isis/src/base/apps/shadow/ShadowFunctor.cpp</p>		
Related issues:		
Related to ISIS - UserTestPlan #4497: Shade application apparently does not a...		Closed

History

#1 - 2016-09-06 10:19 AM - Tammy Becker

- Status changed from New to Acknowledged

High triage level based on incorrect output.

#2 - 2016-10-03 11:25 AM - Stuart Sides

- Target version deleted (FY17 Backlog)

#3 - 2016-10-31 04:03 PM - Tammy Becker

- Related to UserTestPlan #4497: Shade application apparently does not apply ZENITH angle value as specified by user : #4326 added

#4 - 2016-11-10 10:18 AM - Jason Laura

- Target version set to FY17 Backlog

#5 - 2016-11-10 11:38 AM - Jason Laura

- Story points set to 2

#6 - 2016-11-10 11:38 AM - Jason Laura

- Target version changed from FY17 Backlog to FY17 Sprint 3

#7 - 2016-11-18 09:55 AM - Makayla Shepherd

- Assignee set to Makayla Shepherd

#8 - 2016-11-18 12:36 PM - Makayla Shepherd

- Status changed from Acknowledged to In Progress

#9 - 2016-11-18 02:03 PM - Makayla Shepherd

- Status changed from In Progress to Resolved

#10 - 2016-11-18 02:11 PM - Ian Humphrey

- Status changed from Resolved to In Review

#11 - 2016-11-18 02:14 PM - Makayla Shepherd

I won't be updating the app tests for shade (and possibly shadow) until a user tests the fix (and okays it) as the test plan for this app is based on a user looking at the images produced rather than exact values.

#12 - 2016-11-18 02:14 PM - Makayla Shepherd

- Impact updated

#13 - 2016-11-18 02:27 PM - Ian Humphrey

- Status changed from In Review to Feedback

From the developer perspective, this ticket looks good.

I ran the user test plan and there are more significant changes between the 45 and 65 zenith outputs.

This still needs a user to verify the test plan.

#14 - 2016-11-18 02:33 PM - Makayla Shepherd

- Status changed from Feedback to Resolved

#15 - 2016-11-23 12:43 PM - Trent Hare

- Status changed from Resolved to Closed

Using a variable zenith over a DEM seems to work. See video for simple graphic test starting at 11 degrees to 81 degrees zenith (aka altitude)

#16 - 2016-11-23 12:45 PM - Trent Hare

- File *ISIS_Shade_11_to_81_zenith.mp4* added

Files

ISIS_Shade_11_to_81_zenith.mp4	384 KB	2016-11-23	Trent Hare
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